RHIC QLI – Power Supply / Diagnostic Reports for (p^ Run 2001)
December-03 thru December-09

Monday: Dec 03, 2001

Yellow QLI at 10a-ps3.A. MCR will take the opportunity to reset cfe-4b-rtdl, which failed earlier this evening.

Monday: Dec 03, 2001, Beam Abort 10a-ps3.A, QLI in Yellow ring, 10a-ps3.A (Actual Time 01:50:28 +1678609)
QPA Faults: none, yellow off
QD Alarms: all tripped but indicate positive Tq's.
DX Heaters: none fired.
QdRealQuench: none listed.
Postmortems: indicated that yo9-qd1-ps Iref dropped -0.011sec before T=zero causing the current to follow.
Qdplots: YDMC=473amps (Injection current).
Beam Loss Monitors: N/A
Quench Status: not real
Reason: looking at the alarms page, it indicated that yo9-qd1-ps tripped to off. Possible loose connection on the 3u chassis or another faulty off push button on the control card.

02:02:25- Quench Link Interlock in Blue ring, 12a-ps1.A dropped first

Monday: Dec 03, 2001, Beam Abort , QLI in Blue ring, 12a-ps1.A (Actual Time 02:02:16 +1973264)
QPA Faults: none, blue and yellow off
QD Alarms: no FEC/DSP
DX Heaters: 2b, 4b, 6b, 8b, 10a, and 12a all fired.
QdRealQuench: none listed.
Postmortems: incorrect data, all dates indicate Dec 31, 1969.
Qdplots: mains sitting at zero current.
Beam Loss Monitors: N/A
Quench Status: not real
Reason: Re-boot of the cfe-4b-rtdl

0445: Yellow QLI at 12A.ps1. No post mortem data was available for analysis.

Monday: Dec 03, 2001, Beam Abort 12a-ps1.A, QLI in Yellow ring, 12a-ps1.A (Actual Time 04:47:04 +2000009)
QPA Faults: none, yellow off.
QD Alarms: (12a-qd2) Y12QFQ2_VT, Tq-24, all others tripped but indicate positive Tq's.
DX Heaters: none fired
QdRealQuench: none listed.
Postmortems: incorrect data, all dates indicate Dec 31, 1969.
Qdplots: Y12IMQ2 (raw) begins to rise from 477amps at -0.064sec up to 841amps at +0.167sec before falling back down.
Beam Loss Monitors:
Quench Status: not real
Reason: start of a power supply problem, yo12-qd3-ps buffer card (see Dec 3 QLI, 12a-ps1.A @ 05:51:40 top of page 2)

Monday: Dec 03, 2001, Beam Abort 12a-ps1.A, QLI in Yellow ring, 12a-ps1.A (Actual Time 05:10:00 +1049433)
QPA Faults: none, yellow off
QD Alarms: (12a-qd2) Y12QFQ1_VT, Tq-24 was the only one to trip, all others indicated RUNNING.
DX Heaters: none fired.
QdRealQuench: 12a-qd2 only one listed with no indications, all others were RUNNING.
Postmortems:
Qdplots: YQMC sitting at zero then jumping up to 33amps starting at -0.033sec then returns back to zero. Y12QFQ1_VT was also sitting at zero volts.
Beam Loss Monitors: N/A
Quench Status: not real
Reason: unexplained Yellow QLI while running recovery script. MCR notifying George Ganetis Note: Start of a power supply problem, yo12-qd3-ps buffer card (see Dec 3 QLI, 12a-ps1.A @ 05:51:40 top of page 2)

At 05:50, another QLI while running recover script. MCR contacts G. Ganetis, who is logging on. 0610: George has found that yo12-qd3 has a bad buffer card. Support is checking to see if they have paperwork on swapping out the card.

Monday: Dec 03, 2001, Beam Abort 12a-ps1.A, QLI in Yellow ring, 12a-ps1.A (Actual Time 05:51:40 +1316535)
QPA Faults: none, yellow off.
QD Alarms: (12a-qd2) Y12QFQ2_VT, Tq-24 is the only one to fire, all others RUNNING.
DX Heaters: none fired.
QdRealQuench: only 12a-qd2 shown with no indications, all others RUNNING.
Postmortems: y
Qdplots: YQMC at zero then begins to jump up to 42amps around -0.033sec before T=0, then returns back down.
Beam Loss Monitors:
Quench Status: not real
Reason: George Ganetis logged on from home and found a Faulty Buffer Card on yo12-qd3-ps. (Setpoint and current indicated -12 amps). Support replaced it and science continued. Later in the shop, Jim found that a capacitor (C-61) was shorted and loaded down the +15v1, +15v2 and the +16v power supply.

Monday: Dec 03, 2001, QLI in Yellow ring, 3b-ps1 (Actual Time 10:22:20 +370533)
QPA Faults: none, yellow and blue off.
QD Alarms: (3b-qd1) Y2DSA4_A3VT, Tq-24 all others indicate positive Tq's.
DX Heaters: none fired.
QdRealQuench: none listed.
Postmortems: Nothing unusual, looks like ramping up from Injection.
Qdplots: YDMC at 473amps, going up then tripping.
Beam Loss Monitors: N/A
Quench Status: not real
Reason: Yellow and Blue dropped close to at approximately the same time. George notes that MCR did not complete the Hysteresis Loop, they did not go to park before starting the ramp. They also stop at Injection and did machine setup for 3:20min.

Monday: Dec 03, 2001, QLI in Blue ring, 3b-ps1 (Actual Time 10:22:20 +1053334)
QPA Faults: none, blue and yellow.
QD Alarms: only about half indicate numbers and they are all positive.
DX Heaters: none fired
QdRealQuench: none listed
Postmortems: nothing unusual, looks like ramping up from injection.
Qdplots: N/A
Beam Loss Monitors: N/A
Quench Status: not real
Reason: Yellow and Blue dropped close to at approximately the same time. George notes that MCR did not complete the Hysteresis Loop, they did not go to park before starting the ramp. They also stop at Injection and did machine setup for 3:20min.

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Tuesday: Dec 04, 2001
QLI in Blue Snake BO3-SNK7-2.3-PS (Actual Time 23:05:19)
Qdplots indicate Blue Auxiliary 1 quenched.
BDMC=473amps, sitting at injection. BO3-SNK7-2.3 current=326amps
Looks like a drop in current that caused it to trip. This one caused Snake 1.4 to quench.
No Beam loss data.

QLI in Blue Snake BO3-SNK7-1.4-PS (Actual Time 23:05:34)
Qdplots indicate Blue Auxiliary 0 quenched.
BDMC=473amps, sitting at injection. BO3-SNK7-1.4 current=100amps
V-tap BO3-SNK7_1VT drops slowly around -2.56sec before T=0.
Appeared to be a slow quench with no beam loss
Quench Status: REAL QUENCH

Wednesday: Dec 05, 2001, Beam Abort 7b-ps1, QLI in Yellow ring, 7b-ps1 (Actual Time 00:26:24 +1806938)
QPA Faults: none, blue and yellow off.
QD Alarms: all tripped, 8 indicate positive Tq's, 4 indicate dumping data.
DX Heaters: none fire.
QdRealQuench: none listed.
Postmortems: shows nothing unusual.
Qdplots: YDMC=473amps, shows Y7QL01 (raw) dropped first.
Beam Loss Monitors: N/A
Quench Status: not real
Reason: Possible permit module because the blue 7b-ps1 also dropped at the same time. Most likely will replace chassis during the next maintenance day. *(Note: Later on Dec. 07, 2001* ***the permit module was replaced*** *and there have been no trips similar to this one since then.*

Wednesday: Dec 05, 2001, Beam Abort 7b-ps1, QLI in Blue ring, 7b-ps1 (Actual Time 00:26:24 +1806938)
QPA Faults: none, blue and yellow off.
QD Alarms: all tripped, all positive Tq's.
DX Heaters: none fire.
QdRealQuench: none listed.
Postmortems: 1008b show half data dating 1969.
Qdplots: BDMC=473amps, shows B7QL01 (raw) dropped first.
Beam Loss Monitors: N/A
Quench Status: not real
Reason: Possible permit module because the yellow 7b-ps1 also dropped at the same time. Most likely will replace chassis during the next maintenance day. *(Note: Later on Dec. 07, 2001 the* ***permit module was replaced*** *and there have been no trips similar to this one since then.*

Wednesday: Dec 05, 2001, QLI in Blue ring, 12a-ps1.A (Actual Time 00:48:04 +1298482)
QPA Faults: b12-dhx-qp CROW, blue and yellow off.
QD Alarms: none (Running).
DX Heaters: none fired.
QdRealQuench: none listed.
Postmortems: shows b12-dhx-ps voltage spike to maximum (10v) before T=0 causing a real crowbar. Also b12-dh0-ps current went to 48amps, error signal to full (10v) for 2seconds, not long enough to pull the link.
Qdplots: N/A
Beam Loss Monitors: N/A
Quench Status: not real.
Reason: Tripped while running recovery script. Looks like the b12-dhx-ps had a real crowbar fault, causing the script to hault.

Wednesday: Dec 05, 2001

QLI in Blue Snake Magnet: BI9-SNK7-2.3-PS (Actual Time 13:37:21)
Qdplots indicate Blue Auxiliary 1 quenched.
BDMC=473amps, sitting at injection. BI9-SNK7-2.3 current=326amps
V-tap BI3-SNK7_2VT drops negative around -0.166sec before T=0
Quench - Current drops first
Quench Status: REAL QUENCH

QLI in Blue Snake Magnet: BI9-SNK7-1.4-PS (Actual Time 13:37:23)
Qdplots indicate Blue Auxiliary 0 quenched.
BDMC=473amps, sitting at injection. BI9-SNK7-1.4 current=100amps
V-tap BI9-SNK7_1VT drops negative around -0.166sec before T=0
Quenched later on, Error, Quench

Comments by MCR: comment by...Nick Kling -- **Bi9 snakes quenched at 1337**. No beam in ring at the time. ...waldo -- The trip of the bi9-snk7 appears to have started in the inner helices/ps this time. There was no beam in the blue ring at this time, and no beam had been injected for 10 minutes prior to the trip.

21:14 - The blue snake supplies have tripped. The outer snakes have quenched. Six bunches were being injected at the time.

Thursday: Dec 06, 2001

QLI in Blue Snake Magnet: BI9-SNK7-2.3-PS (Actual Time 21:14:28)
Qdplots indicate Blue Auxiliary 1 quenched.
BDMC=473amps, sitting at injection. BI9-SNK7-2.3 current=326amps
Quench Status: REAL QUENCH of storage unit #3.
Reason: Lead voltage drops look stable, probably caused by a high beam loss although there is no BLM data.

QLI in Blue Snake Magnet: BI9-SNK7-1.4-PS (Actual Time 21:14:30)
Qdplots indicate Blue Auxiliary 0 quenched.
BDMC=473amps, sitting at injection. BI9-SNK7-1.4 current=100amps
This magnet quenched because the 2.3 quenched.
Quench Status: REAL QUENCH

QLI in Blue Snake Magnet: BO3-SNK7-2.3-PS (Actual Time 21:14:38)
Qdplots indicate Blue Auxiliary 1 quenched.
BDMC=473amps, sitting at injection. BO3-SNK7-2.3 current=326amps
Quench Status: REAL QUENCH of storage unit #3.
Reason: Probably due to high beam loss although there is no BLM data.

QLI in Blue Snake Magnet: BO3-SNK7-1.4-PS (Actual Time 21:14:42)
Qdplots indicate Blue Auxiliary 0 quenched.
BDMC=473amps, sitting at injection. BO3SNK7-1.4 current=100amps
This magnet quenched because the 2.3 quenched.
Quench Status: REAL QUENCH

21:17:56 comment by MCR...TJS -- Gerry was done, target was out. We tuned up blue injection and had decent injection -- then when we put 6 bunches in, the 1.4 (outer) power supplies quenched on both **bi9-snk7 and bo3-snk7**. Cryo says it will be at least an hour of recovery. Ooops.

Thursday: Dec 06, 2001

QLI in Blue Snake Magnet: BI9-SNK7-2.3-PS (Actual Time 23:53:35)
Qdplots indicate Blue Auxiliary 1 quenched.
BDMC=473amps, sitting at injection. BI9-SNK7-2.3 current=326amps
Quench Status: REAL QUENCH of storage unit #3.
Reason: Lead voltage drops look stable, probably caused by a high beam loss although there is no BLM data.

QLI in Blue Snake Magnet: BI9-SNK7-1.4-PS (Actual Time 23:53:37)
Qdplots indicate Blue Auxiliary 0 quenched.
BDMC=473amps, sitting at injection. BI9-SNK7-1.4 current=100amps
This magnet quenched because the 2.3 quenched.
Quench Status: REAL QUENCH

QLI in Blue Snake Magnet: BO3-SNK7-2.3-PS (Actual Time 23:53:45)
Qdplots indicate Blue Auxiliary 1 quenched.
BDMC=473amps, sitting at injection. BO3-SNK7-2.3 current=326amps
Quench Status: REAL QUENCH of storage unit #3.
Reason: Probably caused by a high beam loss although there is no BLM data.

QLI in Blue Snake Magnet: BO3-SNK7-1.4-PS (Actual Time 23:53:49)
Qdplots indicate Blue Auxiliary 0 quenched.
BDMC=473amps, sitting at injection. BO3SNK7-1.4 current=100amps
This magnet quenched because the 2.3 quenched.
Quench Status: REAL QUENCH

Comments by MCR: Another blue snake quench -- all inners quenched this time, during a 6-bunch fill. Evidently we need to reduce beam size or really aggressively tune up blue injection cleanliness. TJS Cryo needs time to recover.

Friday: Dec 07, 2001

00:03:21 comment by MCR...TJS -- We *could* also improve the blue ring losses and injection efficiency. That would probably help -- PHOBOS chipmunk losses are quite high in the period when we trip off snakes.

Friday: Dec 07, 2001

QLI in Blue Snake Magnet: BI9-SNK7-2.3-PS (Actual Time 02:36:30)
Qdplots indicate Blue Auxiliary 1 quenched.
BDMC=473amps, sitting at injection. BI9-SNK7-2.3 current=326amps
Quench Status: REAL QUENCH
Reason: Data from the QD Plots look wrong, there are no voltage signals at correct size. Probably caused by a high beam loss although there is no BLM data.

QLI in Blue Snake Magnet: BI9-SNK7-1.4-PS (Actual Time 02:36:32)
Qdplots indicate Blue Auxiliary 0 quenched.
BDMC=473amps, sitting at injection. BI9-SNK7-1.4 current=100amps
Reason: These signals look okay, this magnet quenched because the 2.3 quenched.
Quench Status: REAL QUENCH

QLI in Blue Snake Magnet: BO3-SNK7-2.3-PS (Actual Time 02:36:40)
Qdplots indicate Blue Auxiliary 1 quenched.
BDMC=473amps, sitting at injection. BO3-SNK7-2.3 current=326amps
Quench Status: REAL QUENCH of storage unit #3.
Reason: Probably caused by a high beam loss although there is no BLM data.

QLI in Blue Snake Magnet: BO3-SNK7-1.4-PS (Actual Time 02:36:44)
Qdplots indicate Blue Auxiliary 0 quenched.
BDMC=473amps, sitting at injection. BO3SNK7-1.4 current=100amps
This magnet quenched because the 2.3 quenched.
Quench Status: REAL QUENCH

Comments by MCR: The blue snake power supplies **bi9-snk7 and bo3-snk7** have tripped again, the inner snakes have quenched. (Blue snakes quench during injection *again*.) Cryo needs time to recover.

05:30 - **bi9-snk-2.3** has quenched.

Friday: Dec 07, 2001
QLI in Blue Snake Magnet: BI9-SNK7-2.3-PS (Actual Time 05:29:55)
Qdplots indicate Blue Auxiliary 1 quenched.
BDMC=473amps, sitting at injection. BI9-SNK7-2.3 current=326amps
Quench Status: REAL QUENCH of storage unit #3.
Reason: Probably caused by a high beam loss although there is no BLM data.

QLI in Blue Snake Magnet: BI9-SNK7-1.4-PS (Actual Time 05:29:57)
Qdplots indicate Blue Auxiliary 0 quenched.
BDMC=473amps, sitting at injection. BI9-SNK7-1.4 current=100amps
This magnet quenched because the 2.3 quenched.
Quench Status: REAL QUENCH

Friday: Dec 07, 2001, QLI in Blue, 6b-ps1 (Actual Time 10:58:56 +1925643)
QPA Faults: none, blue and yellow off.
QD Alarms: no alarms, system running.
DX Heaters: none fired.
QdRealQuench: no alarms, system running
Postmortems: shows power supplies at Park current.
Qdplots: N/A
Beam Loss Monitors: N/A
Quench Status: not real.
Reason: Shut down for maintenance.

RHIC QLI – Power Supply / Diagnostic Reports for (p^ Run 2001)
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Friday: Dec 07, 2001, QLI in Yellow, 2b-ps1 (Actual Time 10:58:56 +1925877)
QPA Faults: none, blue and yellow off.
QD Alarms: no alarms, system running.
DX Heaters: none fired.
QdRealQuench: no alarms, system running
Postmortems: shows power supplies at Park current.
Qdplots: N/A
Beam Loss Monitors: N/A
Quench Status: not real.
Reason: Shut down for maintenance.

Maintenance performed on **bo3-snk7**, Control card replaced. *(Later found loose **AC power connections** to be the problem)*

Friday: Dec 07, 2001
QLI in Blue Snake Magnet: BO3-SNK7-2.3-PS (Approx. Time 14:50)
Qdplots indicate Blue Auxiliary 1 quenched.
BDMC=473.4amps, sitting at injection. BO3-SNK7-2.3 current=325.8amps
Qdplots: Power supply begins to trip around -6.53sec before T= Zero, V-taps BO3SNK7_3VT and BO3SNK7_2VT indicate a positive rise at the same time.
Quench Status: REAL MAGNET QUENCH
Reason: The wfg went a wire causing the power supply to trip, no 720Hz.

QLI in Blue Snake Magnet: BO3-SNK7-1.4-PS (Approx. Time 14:50)
Qdplots indicate Blue Auxiliary 0 quenched.
BDMC=473.4amps, sitting at injection. BO3-SNK7-1.4 current=100amps
Qdplots: V-tap BO3SNK7_1VT goes positive while both V-taps indicate a perturbation at -3.71sec before quenching.
This magnet quenched because the 2.3 quenched.
Quench Status: REAL MAGNET QUENCH
Reason: The wfg went a wire causing the power supply to trip, no 720Hz.

16:43:15- **bo3-th8 corrector** went down and could not be brought back. MCR compensated for it, need tunnel access for further investigation, possible replacement next maintenance day.

Saturday: Dec 08, 2001

No Power Supply or QLI reported problems.
RHIC p^ Machine Development continues.

Sunday: Dec 09, 2001

No Power Supply or QLI reported problems.
RHIC p^ Machine Development continues.